ABSTRACT OF THE DISCLOSURE

[000165] A frequency hopping sequence generator system (40) for use in a radio telecommunications system utilizes variable frequency offsets (FO) to determine a frequency hopping sequence for use in communication between a mobile station and a network node. The frequency hopping sequence generator comprises a frequency offset hopping generator (42) which chooses the variable frequency offsets so that the frequency hopping sequence provides intra-cell interference diversity. For each mobile station, the frequency offset hopping generator determines a frequency offset index (FOI) which is mapped to one of plural possible frequency offsets (FO). The frequency offset index (and thus the corresponding frequency offset) is determined to provide the frequency hopping sequence with both interference diversity and orthogonality. The frequency offset index has a first component and a second component. The first component of the frequency offset index is an inter-cell component that provides, e.g., collision diversity between FO hopping sequences that are not orthogonal. The second component is an intra-cell component that provides orthogonal (non-colliding) sequences with a variable difference between two sequences. The intra-cell component sub-generator can operate in either a "short sequences" mode or a "long sequences" mode. The long sequences mode renders adjacent frequency collision rates between two sequences with equal FOHSN independent of the choice of the two different FOSEEDs selected. On the other hand, the short sequences mode yields higher collision rates between certain pairs than between other pairs.